

(43) International Publication Date 29 November 2001 (29.11.2001)

(10) International Publication Number WO 01/91297 A2

(51) International Patent Classification7:

(21) International Application Number: PCT/CA01/00723

LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian

patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date:

24 May 2001 (24.05.2001)

(25) Filing Language:

English

H03L 7/00

(26) Publication Language:

English

(30) Priority Data:

60/206,579

24 May 2000 (24.05.2000)

US

Janoz

(71) Applicant and

(72) Inventor: BOGDAN, John, W. [CA/CA]; 1210 Major

Str., Ottawa, Ontario K2C 2S2 (CA).

Declaration under Rule 4.17:

of inventorship (Rule 4.17(iv)) for US only

Published:

without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,

(54) Title: HIGH RESOLUTION PHASE FREQUENCY DETECTORS

(57) Abstract: An inexpensive and reliable, high resolution digital phase detector for timing circuits for wireless, optical or wireline transmission systems. In particular this invention allows using size limited clock counters for measurements of unlimited time ranges by combining unlimited number of intermediate samples without accumulating samples granularity errors. In addition to the measurements of the final time ranges, the intermediate samples are available for purposes of digital signal processing.